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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,879

03/23/2005

Vladimir Ivanovich Gavrilov

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07/24/2006

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EXAMINER

MARTINEZ, JOSEPH P

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,879	<b>Applicant(s)</b> GAVRILOV ET AL.	
	<b>Examiner</b> Joseph P. Martinez	<b>Art Unit</b> 2873	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 22 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Newly added claims 22 and 23, which depend upon claim 1, claim deaerating prior to prior to the finely dispersed polymer being in solution. However, originally filed specification (p. 6, ln. 7-9) explicitly teaches the initial electrochromic composition is produced by mixing a dispersion medium and a dispersed phase. Furthermore, independent claim 1 explicitly claims, the initial electrochromic composition is deaerated to eliminate dissolved oxygen and air introduced together with the finely dispersed polymer. The office interprets the claimed deaerating is deemed necessary as a result of introducing and mixing the finely dispersed polymer into solution.

Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Newly added claim 24, which depends upon claim 1, claims the dispersed polymer is not in solution prior to being in the closed space. However, originally filed specification (p. 6, ln. 7-9) explicitly teaches the initial electrochromic composition is produced by mixing a dispersion medium and a dispersed phase. Furthermore, independent claim 1 explicitly claims, the initial electrochromic composition is deaerated to eliminate dissolved oxygen and air introduced together with the finely dispersed polymer. The office interprets the specification and claim 1 to teach introducing and mixing the finely dispersed polymer into solution prior to filling the enclosed space between electrodes.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4-6, 8-10, 13-16 and 18-21 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Tonar et al. (5888431).

Re claim 1, Tonar et al. teaches for example, a method for producing an electrochromic device comprising at least two electrodes (col. 2, ln. 62-63) at least one

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of them is optically transparent (col. 3, ln. 2-6), and a tightly closed space between the electrodes (col. 2, ln. 58-60) is filled with an electrochromic composition (col. 2, ln. 58 and col. 3, ln. 12-14), characterized in that: the initial electrochromic composition is prepared in the form of an electrochromic disperse system including, at least, a suspension and/or a colloid (col. 27, ln. 21-34; wherein the office interprets the pre-polymer solution with dissolved anodic or cathodic compound and further diluted with polymer propylene carbonate to teach the claimed limitation), wherein a dispersion medium is an electrochromic solution comprising a liquid solvent (propylene carbonate; col. 9, ln. 14-27; col. 27, ln. 22), a cathodic component and an anodic component (col. 6, ln. 65-67), and a disperse phase is a finely dispersed polymer (col. 27, ln. 32-34; wherein the office interprets "thoroughly mixing" to teach the claimed limitation); the initial electrochromic composition is deaerated (col. 27, ln. 32-34) to eliminate the dissolved oxygen and air introduced together with the finely dispersed polymer (wherein the office interprets degassing to remove all gases); the closed space between the electrodes is filled with the deaerated initial electrochromic composition (col. 27, ln. 37-39); the closed space between the electrodes is sealed (col. 27, ln. 39-41).

Re claim 2, Tonar et al. further teaches for example, the electrochromic solution comprises an inert electrolyte additionally (col. 7, ln. 57-58).

Re claim 4, Tonar et al. further teaches for example, deaeration of the initial electrochromic composition for eliminating dissolved oxygen and air introduced together with the finely dispersed polymer is performed by evacuation (col. 27, ln. 32-34).

Re claim 5, Tonar et al. further teaches for example, the finely dispersed polymer is taken in an amount that ensures forming a solid-like layer of the electrochromic composition (col. 7, ln. 52-55).

Re claim 6, Tonar et al. further teaches for example, the finely dispersed polymer is a linear polymer (col. 11, ln. 35-38).

Re claim 7, Tonar et al. further teaches for example, the finely dispersed linear polymer is a high-molecular polymer (col. 11, ln. 56-59).

Re claim 8, Tonar et al. further teaches for example, the finely dispersed highly-molecular linear polymer is a copolymer of methyl methacrylate and methacrylic acid (col. 11, ln. 8-13).

Re claim 9, Tonar et al. further teaches for example, the liquid solvent is an individual chemical compound or a mixture of chemical compounds (col. 9, ln. 14-27).

Re claim 10, Tonar et al. further teaches for example, the cathodic component is an individual organic electrochromic compound having at least one reversible volt ampere reduction wave or a mixture of organic electrochromic compounds that has at least one reversible volt ampere reduction wave (col. 8, ln. 66-67, wherein the office interprets the claimed limitations to rely on the physical and chemical properties of the claimed organic compound and furthermore, the office interprets the organic compound of 1,1'-di(3-phenyl(n-propyl))-4,4'-dipyridinium to have the physical and chemical properties as disclosed in the applicant's specification on p. 6, ln. 22-25), and the anodic component is reversible volt an individual organic electrochromic compound having at least one ampere oxidation wave or a mixture of organic electrochromic compounds that has at least one reversible volt ampere oxidation wave (col. 14, ln. 16, wherein the office interprets the claimed limitations to rely on the physical and chemical properties of the claimed organic compound and furthermore, the office interprets the organic compound of ferrocene to have the physical and chemical properties as disclosed in the applicant's specification on p. 7, ln. 8-9).

Re claim 13, Tonar et al. further teaches for example, the cathodic component is a quarternary salt of dipyridinium or its derivatives or a mixture of salts (col. 8, ln. 66-67).

Re claims 14 and 15, Tonar et al. further teaches for example, the anodic compound is a metallocene or ferrocene (col. 14, ln. 16).

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Re claim 16, Tonar et al. further teaches for example, the anodic compound is 5,10-dihydro-5,10-dimethylphenazine (col. 14, ln. 16-17).

Re claims 18 and 19, Tonar et al. further teaches for example, the closed space between the electrodes is deaerated prior to being filled with the initial deaerated electrochromic composition or is performed by evacuation (col. 27, ln. 37-39; wherein the office interprets "vacuum backfilling technique" to teach the claimed limitations).

Re claim 20, Tonar et al. further teaches for example, at least two electrodes (col. 2, ln. 62-63) at least one of them is optically transparent (col. 3, ln. 2-6), and the space between the electrodes (col. 2, ln. 58-60) is tightly sealed (col. 2, ln. 60) and filled with an electrochromic composition (col. 2, ln. 58 and col. 3, ln. 12-14).

Re claim 21, Tonar et al. further teaches for example, the electrochromic composition comprises additionally an UV-stabilizing agent (col. 7, ln. 57).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



Claims 3, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tonar et al. (5888431).

Re claims 3, 11 and 12, supra claims 2 and 10, respectively. Furthermore, Tonar et al. further teaches for example, varying the concentration of different constituents (col. 13, ln. 53-67 to col. 14, ln. 1-10).

But, Tonar et al. fails to explicitly teach the electrolyte concentration is 0.005M-0.5M, the concentrations of the cathodic and anodic components are 0.001M-0.2M, or preferably 0.01M-0.1M.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the concentrations of the specified constituents, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Tonar et al. to include the claimed ranges of concentration of the specified constituents in order to provide a free standing gel and sufficient mobility, as taught by Tonar et al. (col. 13, ln. 64-67).

### ***Conclusion***

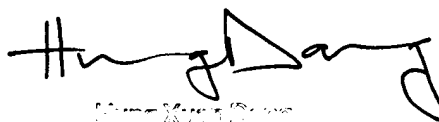
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
7-10-06



Hung Dang  
Patent Examiner  
Art Unit 2873